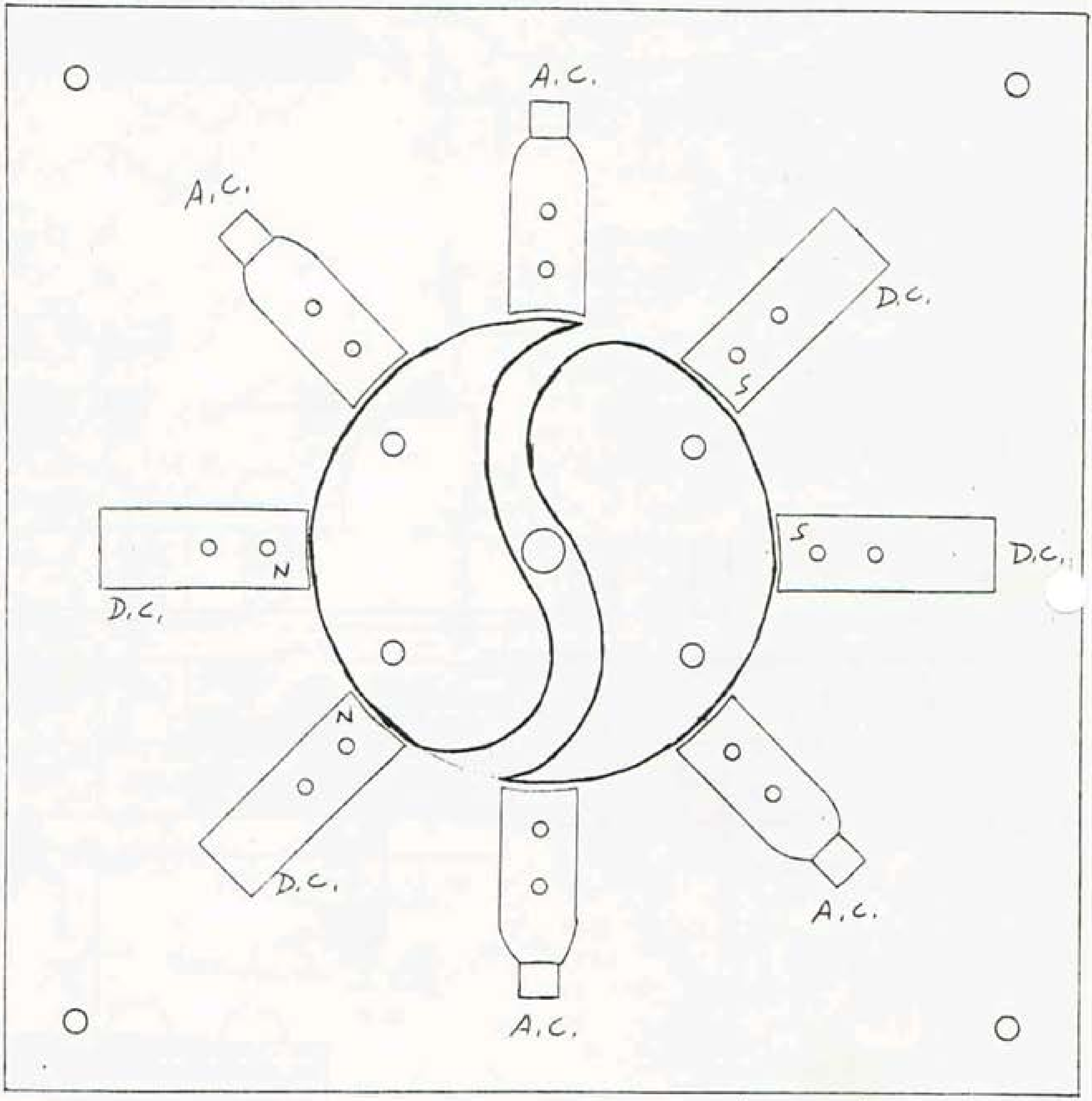
Improved M. D. Generator

Paul Brown
10-1-82



Yin-Yang Roter design

1/2 Scale

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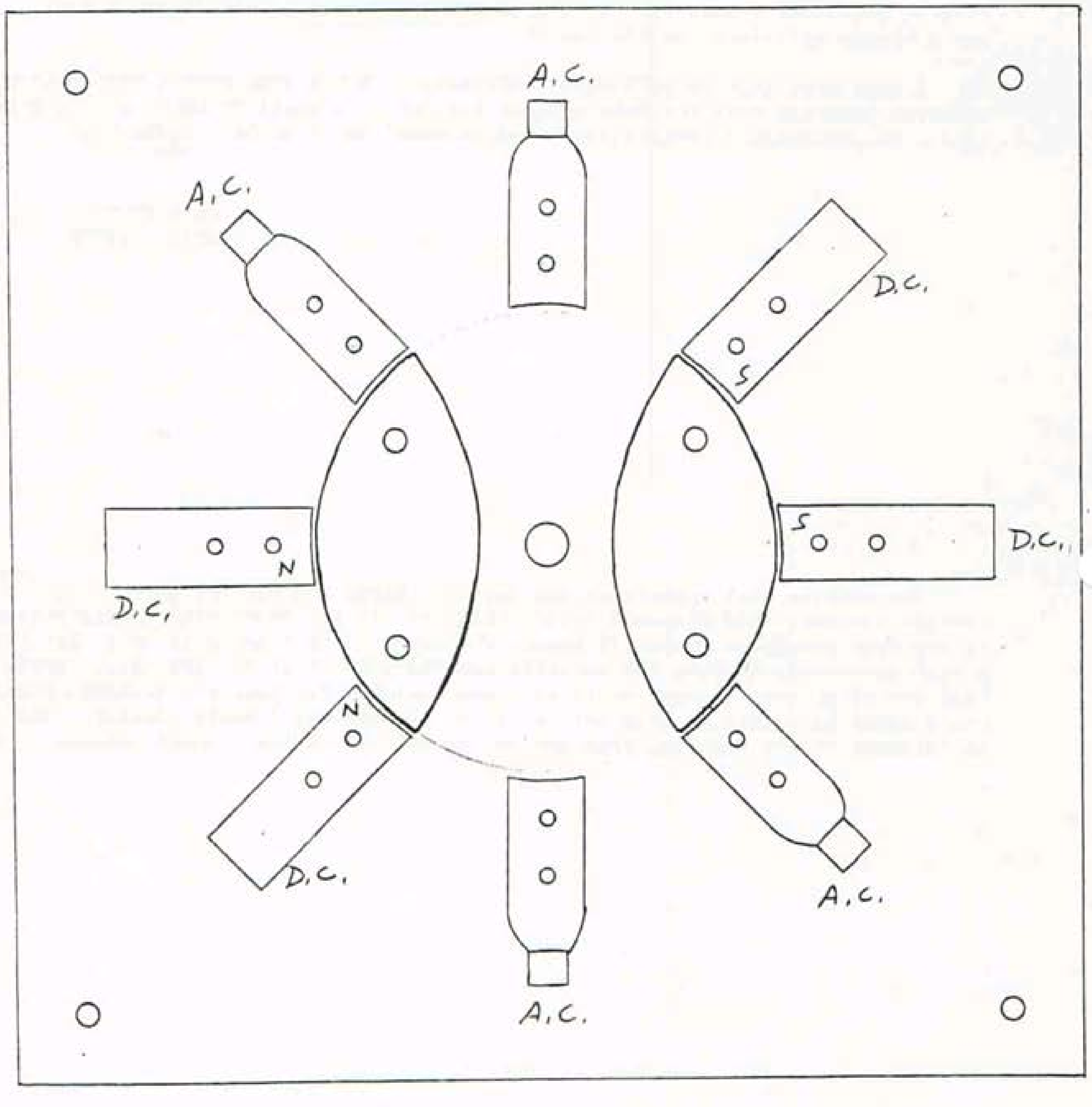
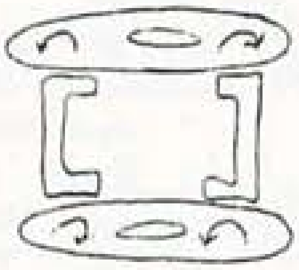


1/2 Scale

8. The eddy-crrents are 180 out of phase between opposite A.C. cores and opposite ends.



9. By using diodes to electrically connect the cores and the frame bolts to the end plates, we get a substantial flow of D.C. current through the frame and cores (by cutting a frame bolt, we were able to measure 5V & 2A across the gap).

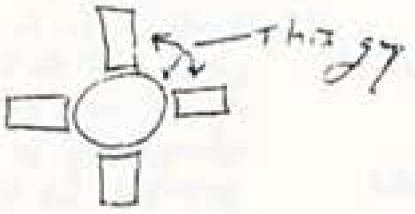
10. This current flow, through the frame, is in the direction such as to produce both an electric and magnetic field that work together with the fields of the D.C. coils (moving electricity produces a magnetic field) while superimposing an electric field with the alternating magnetic field of the A.C. coil.

11. It is this flow of power through the field of the A.C. coil in unison with the residual magnetism and the current flow through the frame that produces the self excitation field. All must be present for successful operation in this mode.

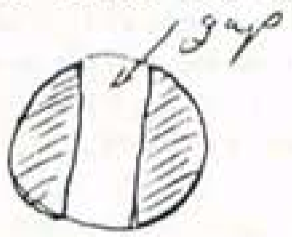
12. To sum it up; in the self-excitation mode we actually have two machines operating simultaneously; the M.D. generator and an oscillating rotary eddy-current capacitor device that re-introduces energy at the proper time.

CONSTRUCTION NOTES

1. Many problems (i.e., stepping, cogging) can be eliminated by the addition of a flywheel.



2. This gap should be at least as wide as the pole faces. A one inch distance between adjacent pole faces seems to be a minimum (any closer and the result is a loss of power due to the magnetic field not being allowed to fall completely.



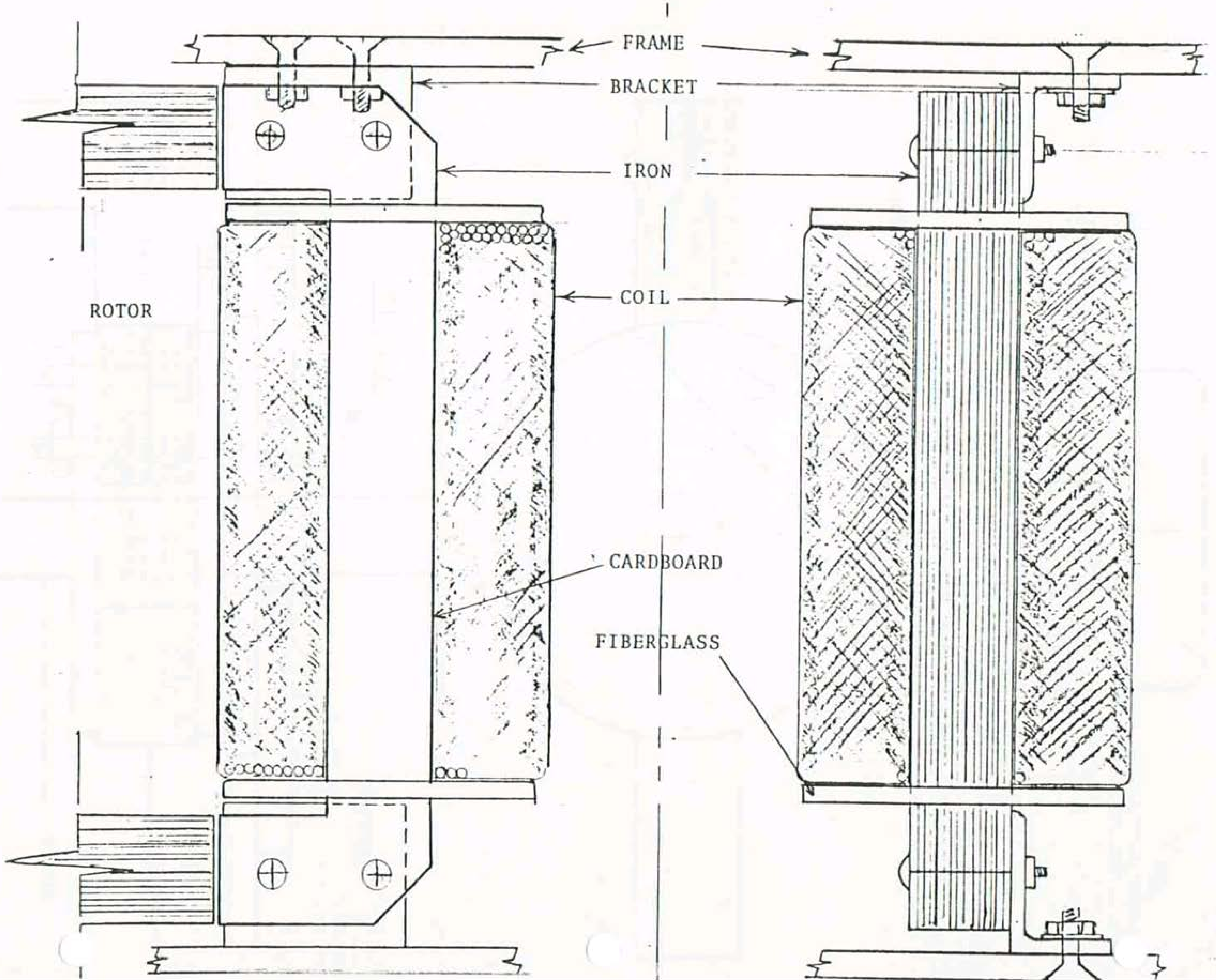
3. The gap between the iron segments that comprise the rotor must be at least as wide as the pole faces to prevent an iron path directly between any two D.C. magnets or else electromagnetic braking will occur and cause an excessive drag on the rotor with a loss of efficiency.

4. Laminations must be used in all A.C. components, as hysterisis eats-up a lot of power (in excess of 50%!).

5. Dough-nut type coils of equal lengths of wire should be used throughout the A.C. output circuit unless you intend to use one continuous coil with no taps (taps cause one coil to rob power from another).

6. The iron core of the A.C. circuit should be of smaller cross-section than the pole faces (the result is an increase of power probably due to less loss from hysterisis). For instance, we have found that a 1"X1" pole face coupled with a ½X½ core works better than a uniform 1X1"core.

7. To utilise the self excitation mode, it is best(not mandatory) to insulate the iron cores (both A.C. and D.C.) from the frame, as well as the frame structure bolts, so that the end plates are isolated from the rest of the structure. By jumping with diodes, the proper current flow can be maintained. Also, the ends of the A.C. cores should be as close as possible to the aluminum end plates(this enhances the production of eddy currents in the plate).


FRAME
BRACKET
IRON
ROTOR
COIL
CARDBOARD
FIBERGLASS

CONCLUSION

Hence, we have a novel generator utilising a new approach to an old problem, that requires a minimum amount of horsepower to operate. From the results of this experiment:

1. Voltage increases with an increase in r.p.m..
2. Voltage increases with the number of turns of wire on the output coil.
3. Power increases with an increase in the magnetic field strength.
4. Relative to conventional generators, their is no torque on the rotor.
5. Extremely high efficiency, unparalleled by conventional generators.

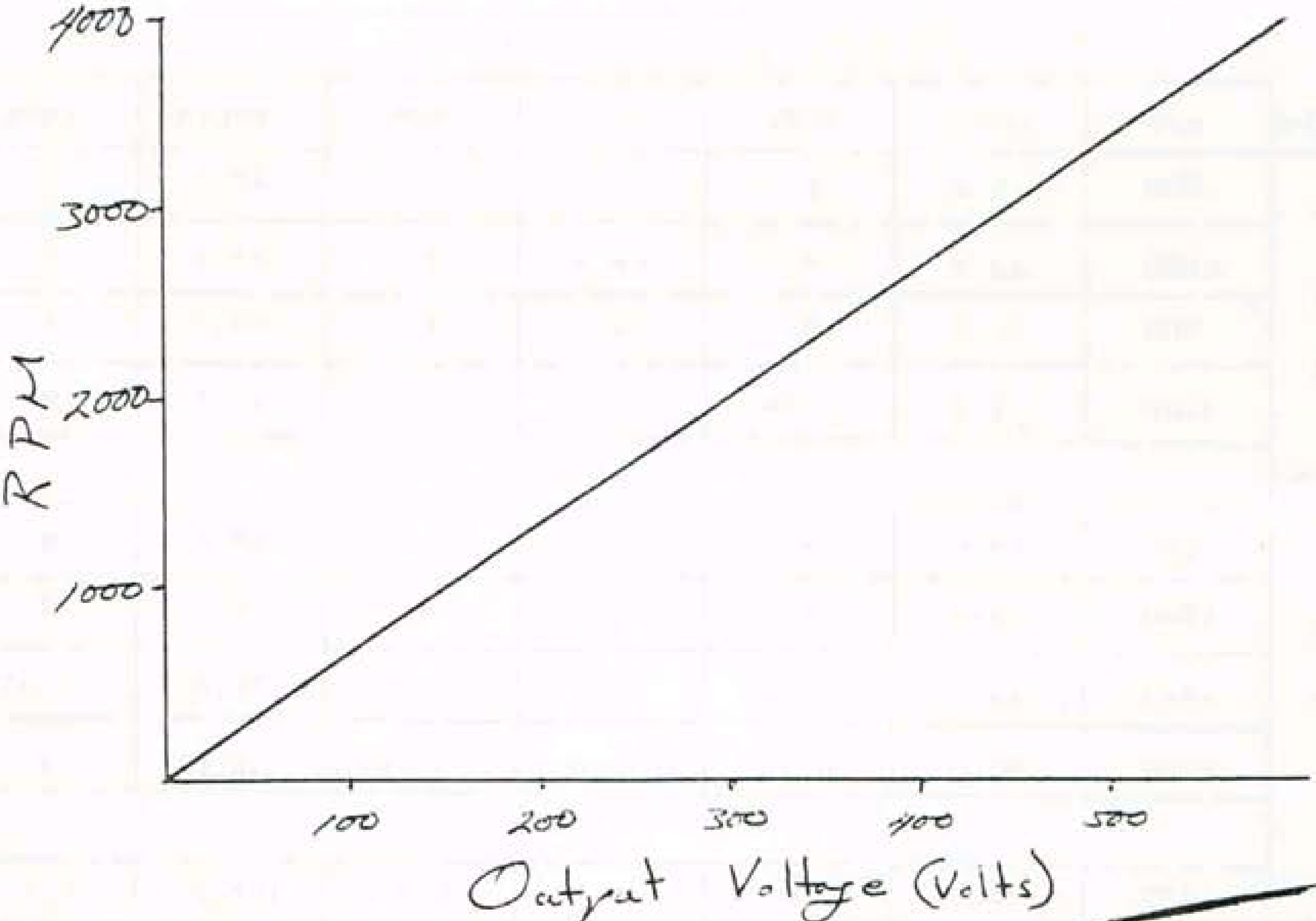
Under these conditions, prime movers previously of no use, now have new application. For instance, Jefimenko's 1/10 h.p., 5,000 rpm electrostatic motor, which has the capacity to motivate from atmospheric electricity, could be utilised as the prime mover with a generator of this design. Present data infers that such an arrangement could produce one kilowatt of power continuously with only a vertical antenna as a power source, until the bearings wear out (Machine Design, Vol. 43, pg. 32, April 15, 1971). And there is the self excited-self motivated closed system configuration that will produce its design output for the life of the mechanics. This design may be classed under the Raymond Kromrey patent (# 3,374,376) which I consider to be inferior due to its use of comutators to extract power from the rotor. The simplicity and elementary design of the Magnetic Distributor Generator, coupled with the high efficiency of the prototype, warrants further research into this system for power production.

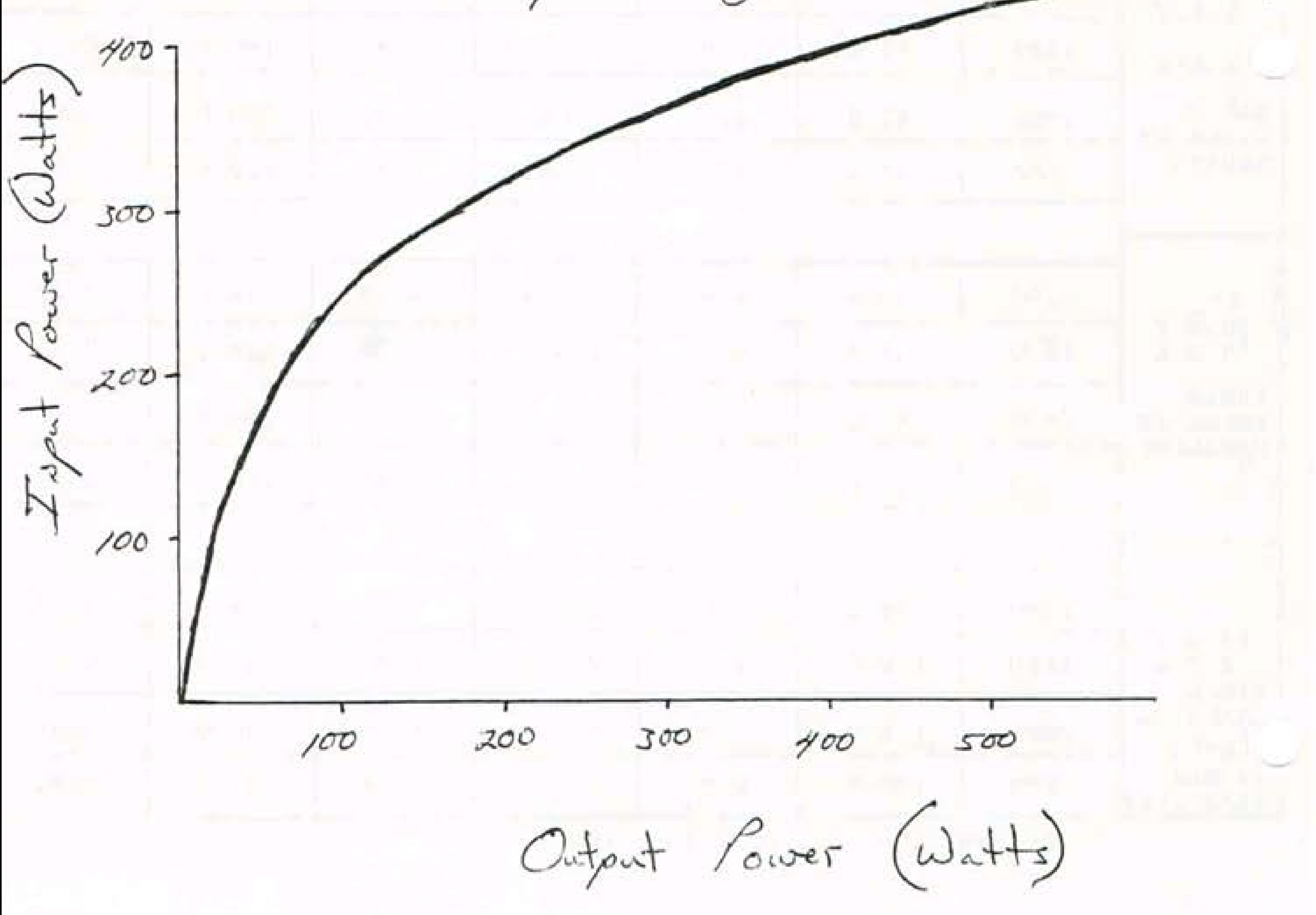
We would like to express our thanks to Moss Research who made this project possible.

A three-phase version is currently under construction, the results to be published at a later date.

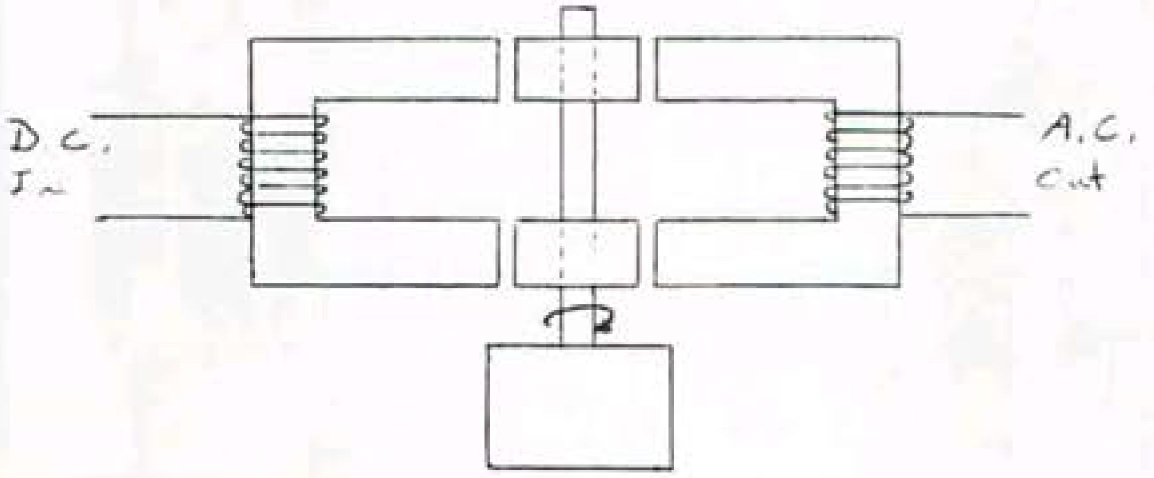
PAUL BROWN
JUNE 15, 1982

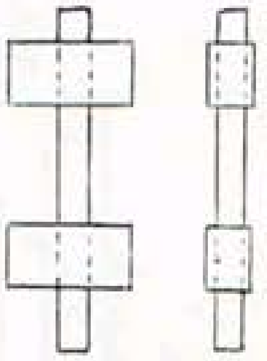
Present data gives no hint as to the upper limit to the amount of power atainable by the use of this method of production.


4000
3000
2000
1000
RPM
100
200
300
400
500
Output Voltage (Volts)

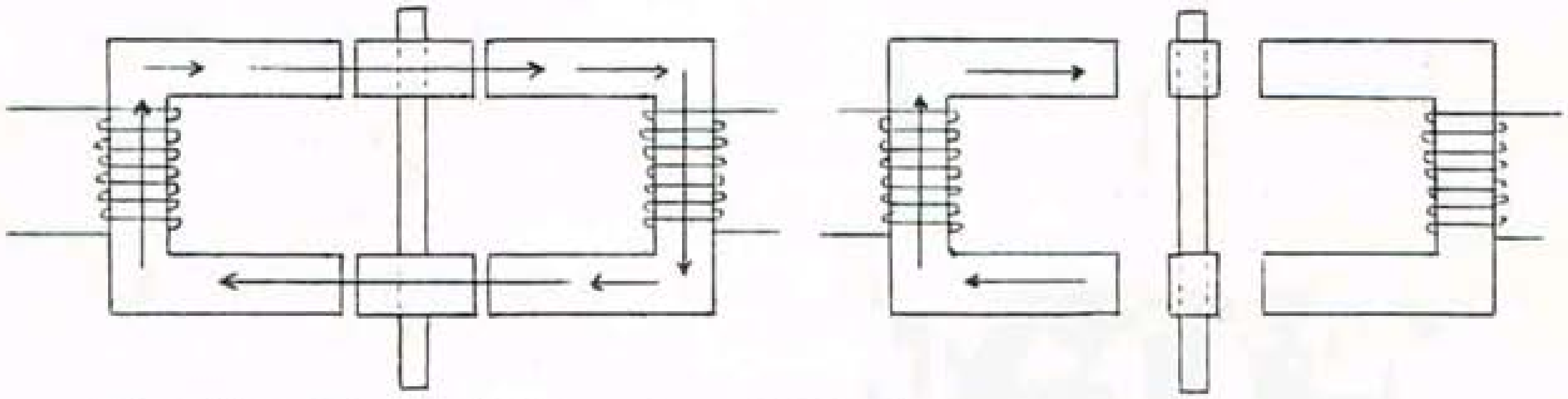

400
300
200
100
Input Power (Watts)
100
200
300
400
500
Output Power (Watts)

Ecklin's concept sufised to demonstrate the validity of the principle but lacks the flexibility necessary for industrial applications. The modified version needs electromagnets to replace the permanent magn the output coil needs to be located in the stator, impractical means for adjusting the gaps,etc.. Several designs were considered, and we finally decided on this design for the next version.

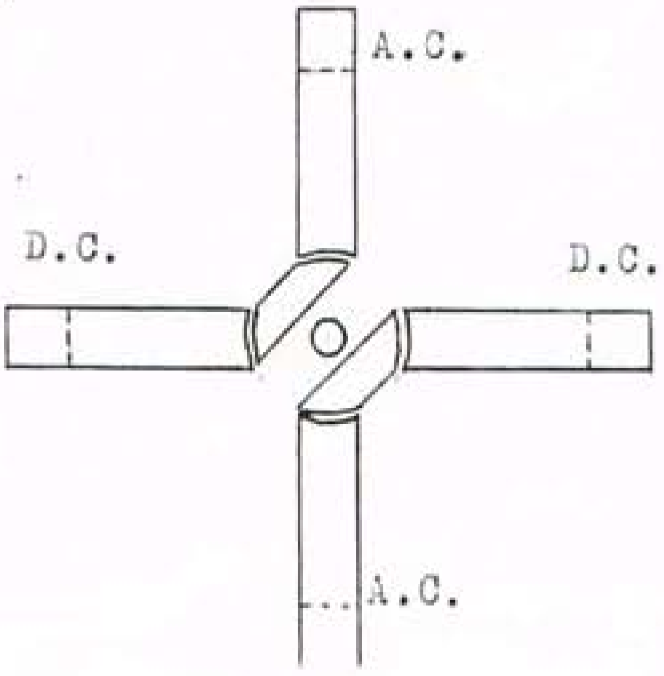


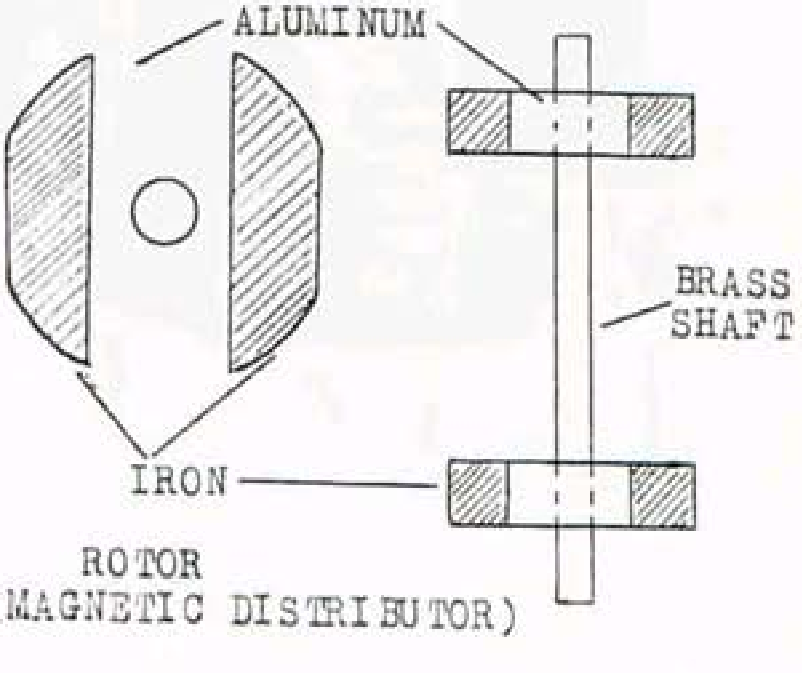

Rotor Design

To understand the mode of operation, it is best to think of magnetism as a fluid (much the same as in electrical considerations), and iron is a conductor of magnetism.



When the poles of the rotor fill the gap, magnetism flows through a closed circuit as indicated by the arrows. This flow sets up a magnetic field around the output coil. Now when the rotor turns 90 , the gap is opened and the flow of magnetism through the output coil ceases. This causes the magnetic field to collapse in the output coil. It is this rising and falling field in the output coil that produces the e.m.f.. The actual embodiment of our test model incorporates four poles instead of two.



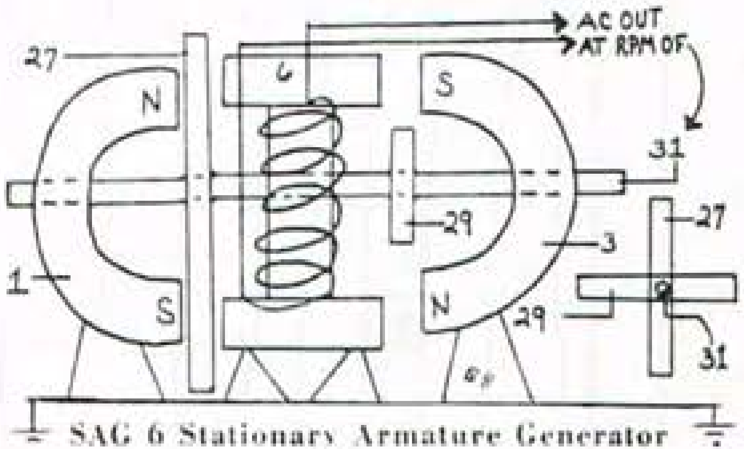


ROTOR
(MAGNETIC DISTRIBUTOR)

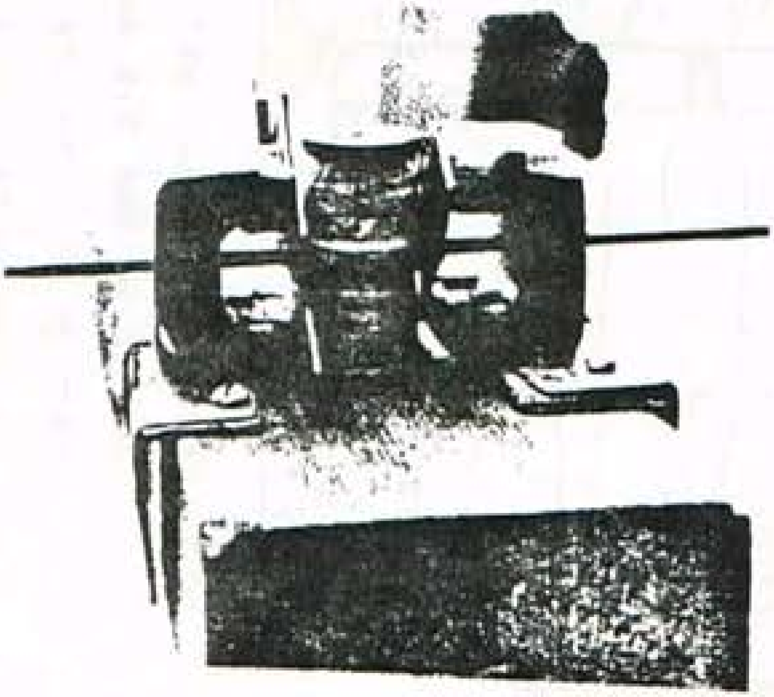
THE MAGNETIC DISTRIBUTOR GENERATOR

Today, the principle used to generate electricity from mechanical energy is much the same as it was 80 years ago. Electromagnetic induction: when a relative motion exists between a magnet and a wire, an e.m.f. is produced in the wire (according to the Right-Hand rule). The problem with this principle is that when there is this relative motion, eddy-currents are produced in the conductor that oppose the motion (according to Lenz's law). These eddy-currents produce a net torque on the rotor that resists motion. Energy is used to overcome the resistance of the rotor, which reduces (limits) the efficiency of the generator. Now the problem put to the engineer is to produce a generator with no relative motion between the magnet and the wire, thus increasing efficiency by avoiding Lenz's law.

April 22, 1975 John W. Ecklin recieved patent number 3,879,622 for a Permanent Magnet Motion Conversion Device. This patent pertains to permanent magnet motors, however, a derivative of this original imbodiment is the Stationary Armature Generator concieved by Ecklin. In this generator both the magnet and the wire stationary, with the magnetic flux produced mechanically by a rotating iron shield.



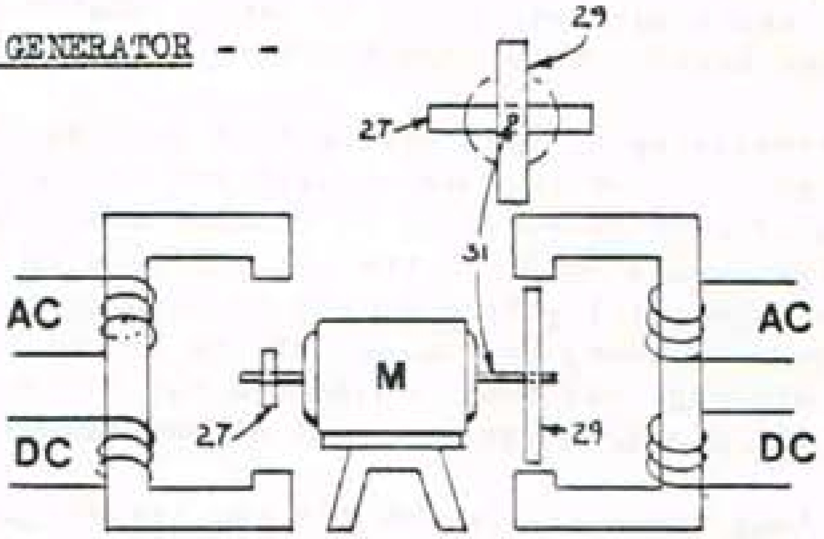
SAG 6 Stationary Armature Generator



The concept was interesting, yet, Ecklin himself had never built such a device. After reviewing the simplicity of the design, a quick trip to the hardware store produced a minature test model consisting of two 10 lb.-pull horseshoe magnets, a bolt with many turns of 30 gua wire, and a tin shield. Spinning the roto with a portable hand drill produced an output of 1.5 volts. Ecklin was correct. The principle works.

What we have in the SAG 6 design is what should have been invented to begin with! SAG 6 uses a simplified method to change the magnetic field of oppositely polarized magnets 1 and 3, just by the use of diverters 27 and 29 to alternately reverse the magnetic field thru coil 6. This is a far more efficient way of doing things! Mr. Ecklin says that as with most things in nature magnetic fields 'take' or 'make' the the easiest path and will 'prefer' the soft steel in 27 and 29 more than 7000 to one compared to air. He also says the losses in a SAG 6 are less than 2%, since there is less iron in 27 and 29 than in the rotors of today's generators. A SAG 6 can be at least 50 times to 5000% more efficient than today's generators, since it does not turn a magnet or coil and has no brushes! Since you may get six times more out of a SAG 6 than you put in, you can use one-sixth of the output for an ordinary electric motor to turn shaft 31. Put a 2 KW motor (about 3 HP) on at 3600 rpm and you get 10 KW of useable power! (12KW **total minus** 2 KW for the motor = 10KW). He envisions (in a car) the motor to shaft 31 being started by a battery like those used on a motorcycle. From then on the output of the generator turns this motor - plus the drive motors on the car - and also recharges the battery. The same idea applies to the home, since the 60 CPS output (at 3600 RPM) can heat your home plus do all those things you now make a monthly payment for..

SAG 7 - THE UPDATE ECKLIN GENERATOR - -

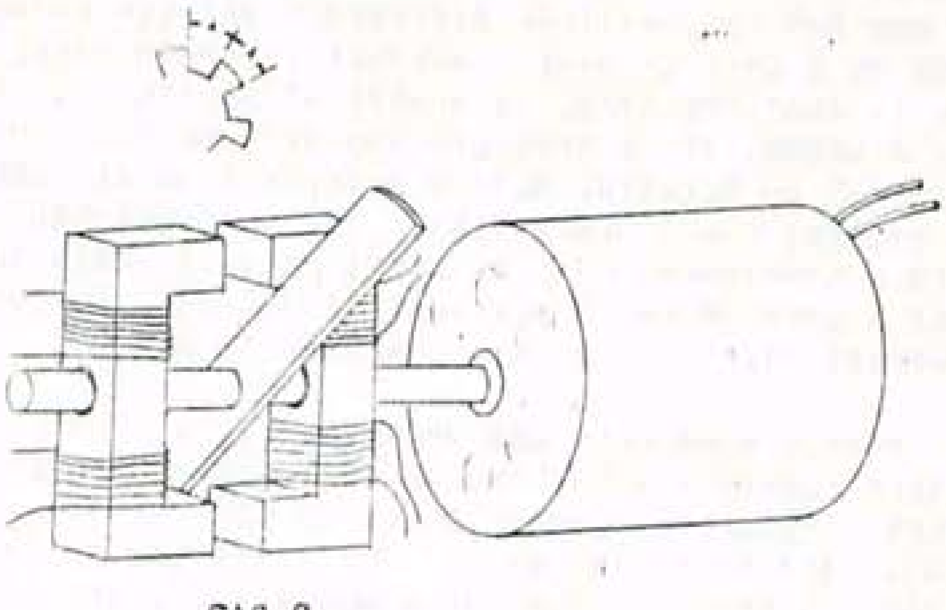


SAG 7

The secret of a variable flux path transformer/generator is well hidden in Lenz's law and the critical difference between magnetic induction of steel compared to a coil of wire. Whether you push steel to the pole of a magnet or pull it away, the steel is always attracted. When you push a coil to the pole of a magnet is it repelled and yet the coil must still be pulled away. A VFPT/G has no relative motion between a magnet and a coil which we find in all present power generators. These generators rotate a steady magnetic field in a stationary coil of wires or vice versa to get a changing magnetic field at a wire which is all that is required to create electricity. Magnetic flux prefers steel 7000 to 1 compared to air..

Get 2 "C" shaped armatures and wrap each with 2 coils. One coil will have a DC (direct current) input and we will get AC (alternating current) out of the other. Parallel both AC coils so one creates the plus and the other the minus half of a sine wave. Put 2 keepers or soft steel magnetic flux conductors on opposite ends of a motor (M) shaft and at right angles to each other. Turn motor at 1800 RPM to get 60 cycles per second from AC coils. A much smaller motor is required if you get it up to 1800 RPM before energizing the DC coils. You get 3 to 9 times as much output as you put in - as you no longer fight Lenz's law so the excess can be used to heat and light your home or to propel your car, etc...

SAG 8 - OUR UPDATE STATIONARY ARMATURE GENERATOR --



SAG 8

In our view, SAG 8 has all of the good qualities described for SAG 6 and 7 but is a more practical design. By making the rotor bar into the type of configuration shown where "A" is the width of the stator face peices - will produce a much smoother rotation and also a better sine-wave output. The rotation speed will have to be adjusted by the formula: RS (Rotation Speed in RPM) = 7200/N (Number of lobes on Rotor) to produce 60 cycle current. By passing DC current through one set of coils on each stator assembly, this could be used without using permanent magnets. We believe thi- will produce the gain stated for using permanent magnets but could be a useful way producing a DC to AC converter.

It seem that for a given rotation speed the amount of voltage and current produced would be determined by the strength of the magnetic field. A transformer could be used to produce the proper voltage and change the magnetic field to control the voltage This could be done by applying a DC current to a field coil complimenting the permanent magnetic field. This method would provide a better degree of control...

Lots of luck,
K.R.O.

47 repel each other and compress springs 53 and 55. When the shutter member 57 is again placed between magnets 45 and 47, the compressed springs 53 and 55 force magnets 45 and 47 back into the position shown in FIG. 3. Periodic action of shutter member 57 will produce a periodic reciprocating motion which may be converted to useful rotary motion by circular wheels 59 and 61. The shutter 57 may be mounted for rotary motions in a fashion similar to shutters 27 and 29 of FIG. 1.

What is claimed is:

1. A permanent magnet motor comprising
a pair of permanent magnets positioned in spaced relationship,
a reciprocating magnetizable member positioned between said permanent magnets,
power-take-off means coupled to said reciprocating member,
spring means biasing said reciprocating member between said permanent magnets,
a pair of magnetic shields positioned on either side of said reciprocating member and between said permanent magnets to shield said reciprocating member from the magnetic fields of said permanent magnets, and
means to move said shields in and out between said reciprocating member and said permanent magnets to alternately shield and expose said member to the magnetic fields of said permanent magnets,
whereby the actions of the magnetic fields of the permanent magnets and the spring means cause the reciprocating magnetizable member to reciprocate between the permanent magnets.

2. The combination according to claim 1 wherein said magnetic shields comprise
rotatable shutters positioned to be inserted and removed at right angles to the magnetic fields of the permanent magnets.

3. The combination according to claim 1 wherein said spring means comprise
a spring connected to either side of said reciprocating member whereby motion of said reciprocating member in one direction will elongate one spring and compress the other to provide restorative forces to the reciprocating member at each end of its travel.

4. the combination according to claim 1 wherein said reciprocating magnetizable member is a permanent magnet.

5. A permanent magnet motor comprising
first and second permanent magnets,
first and second mounting means for mounting said first and second magnets in spaced relationship for reciprocating movement along a common axis with like magnetic poles adjacent each other,
power-take-off means coupled to said first and second magnets, and
magnetic shield means positioned between said first and second magnets for alternately shielding and exposing the magnets to the magnetic field of the other,
first and second spring means for biasing said magnets in positions immediately adjacent each other,
whereby the alternate withdrawal and replacement of said shield means causes the magnets to repel each other against the biasing action of the springs and to be returned to their original adjacent positions by the spring action.

* * * * *

(generator continued from page 258)

What we have here then is what should have been invented to begin with - a method of changing the magnetic field of oppositely polarized magnets 1 and 3 in a simplified way, just by the use of diverters 27 and 29 to alternately reverse the magnetic field thru coil 6. This is a far more efficient way of doing things. Mr. Ecklin says that like most things in nature magnetic fields take and make the easiest path and prefer the soft steel in 27 and 29 more than 7,000 to one compared to air. He also says the losses in a SAG 6 are less than 2% since there is less iron in 27 and 29 than in the rotors of today's generators. A SAG 6 can be at least 50 times or 5000% more efficient than today's generators since it does not turn a magnet or coil and has no brushes. Since you get six times more out of a SAG 6 than you put in, you can use one sixth of the output for an ordinary electric motor to turn shaft 31. Put a 2 KW motor (about 3 HP) on at 3,600 RPM and you get 10 KW of useable power. (12KW total minus 2 KW for the motor= 10KW) He envisions in a car the motor to shaft 31 being started by a battery like those used on a motorcycle. From then on the output of the generator turns this motor plus the drive motors on the car and recharges the battery. The same idea applies to the home since the 60 CPS output (at 3,600 RPM) can heat your home plus do all those things you now make a monthly payment for.

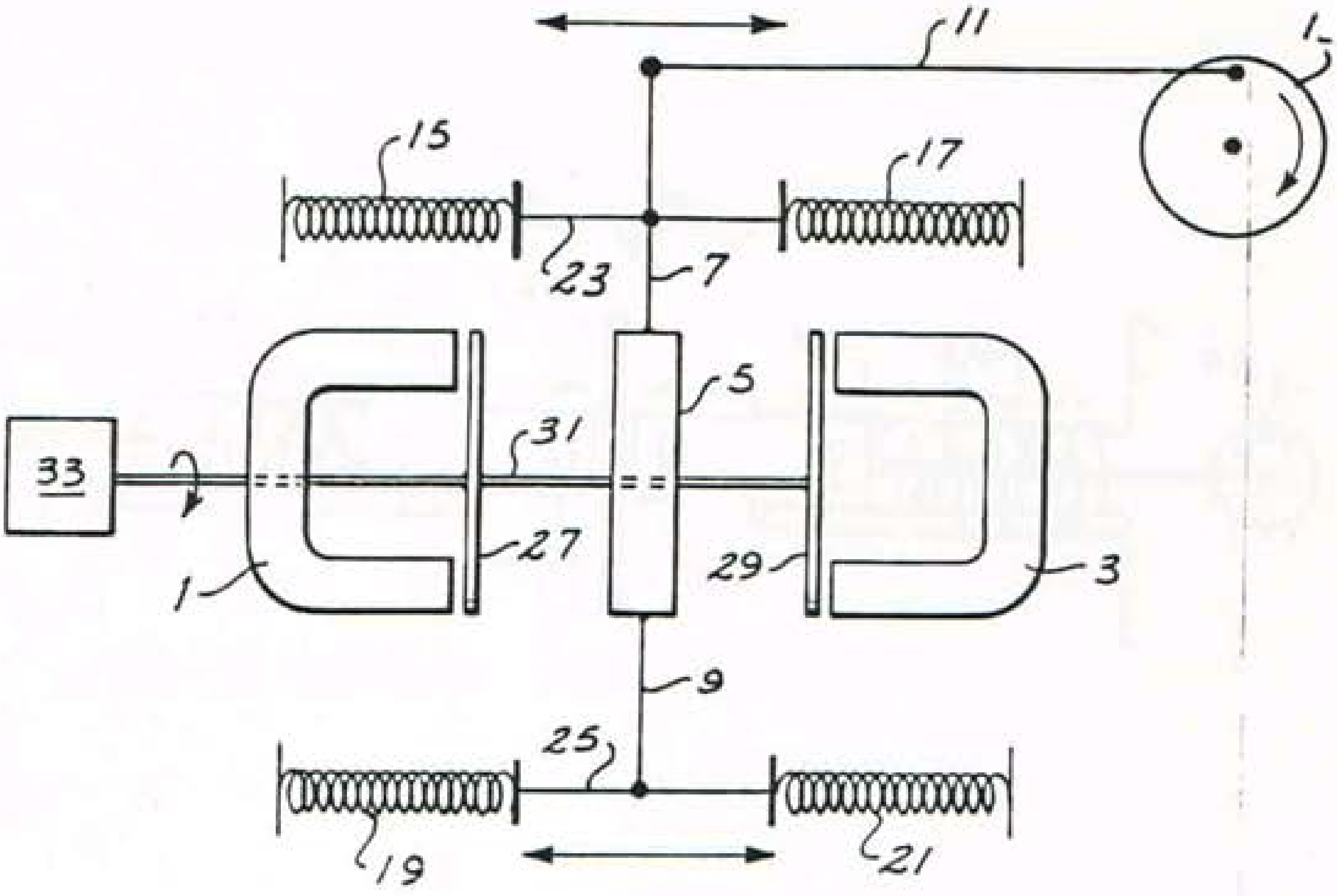


Fig. 1

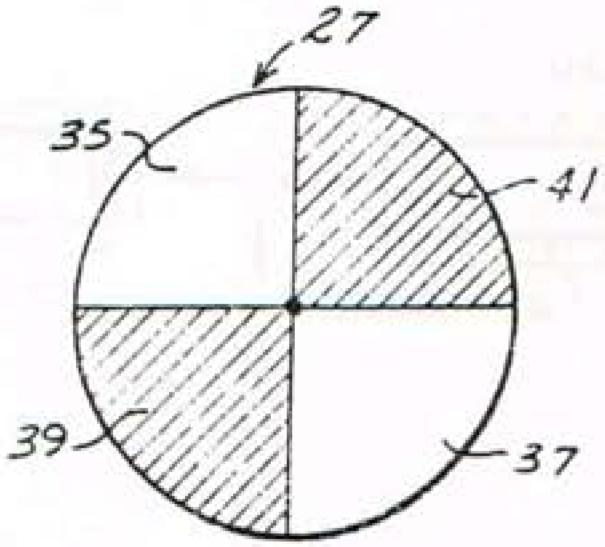


Fig. 2

United States Patent [19]

Ecklin

[11] **3,879,622**

[45] **Apr. 22, 1975**

[54] **PERMANENT MAGNET MOTION CONVERSION DEVICE**

[76] Inventor: **John W. Ecklin**, 6143K Edsall Road
Alexandria, Va.
22304

[22] Filed: **Mar. 29, 1974**

[21] Appl. No.: **456,336**

[52] **U.S. Cl.** **310/80**; 310/103; 310/24
[51] **Int. Cl.** **H02k 7/06**
[58] **Field of Search** 310/20–24, 310/80, 103, 190

[56] **References Cited**

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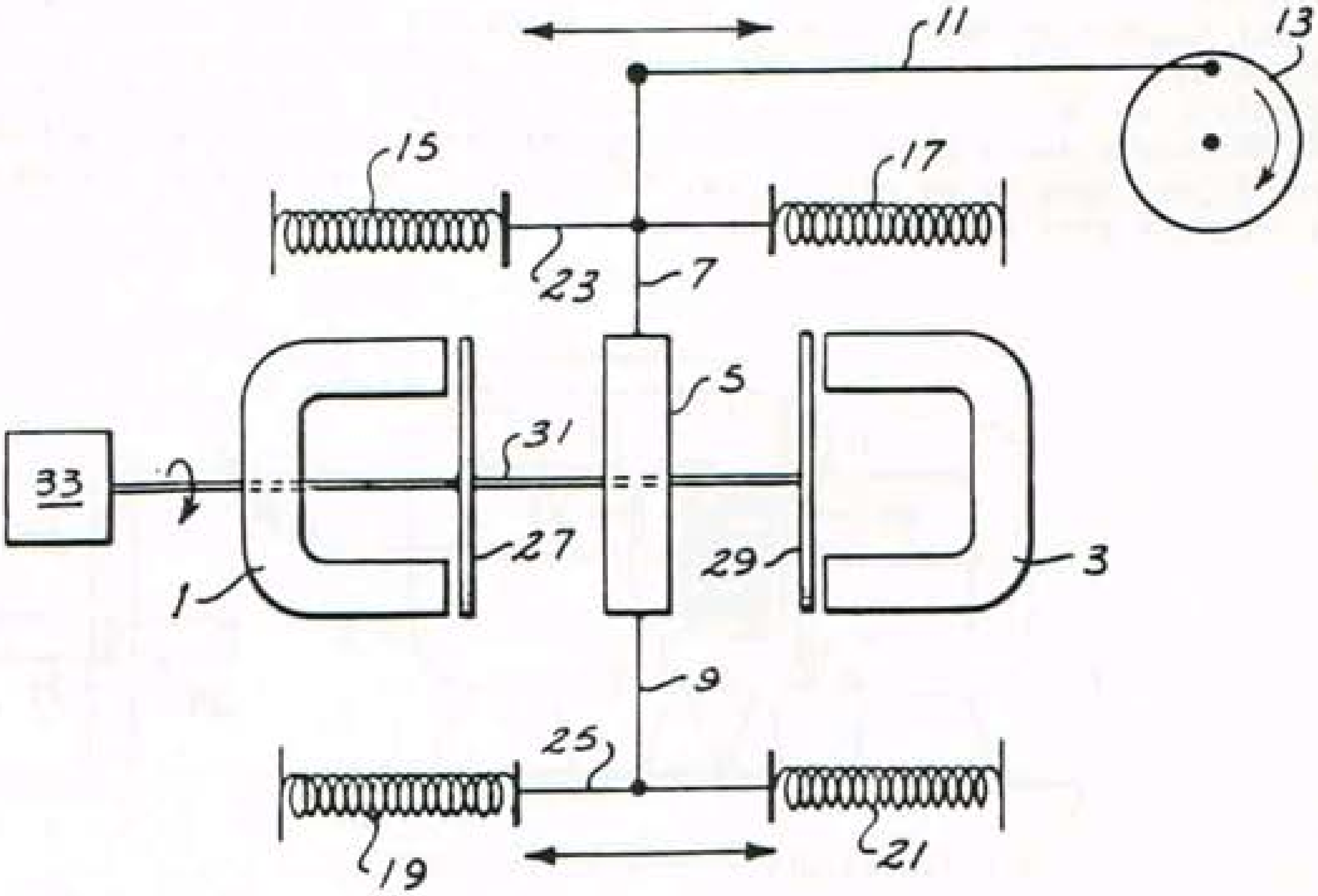
Primary Examiner—Donovan F. Duggan
Attorney, Agent, or Firm—Crickenberger & Moore

[57] **ABSTRACT**

A permanent magnet motor in one embodiment utilizes a spring-biased reciprocating magnetizable member positioned between two permanent magnets. Magnetic shields in the form of rotatable shutters are located between each permanent magnet and the reciprocating member to alternately shield and expose the member to the magnetic field thereby producing reciprocating motion. A second embodiment utilizes a pair of reciprocating spring-biased permanent magnets with adjacent like magnetic poles separated by a magnetic shield which alternately exposes and shields the like poles from the repelling forces of their magnetic fields.

5 Claims, 4 Drawing Figures



SAG-10

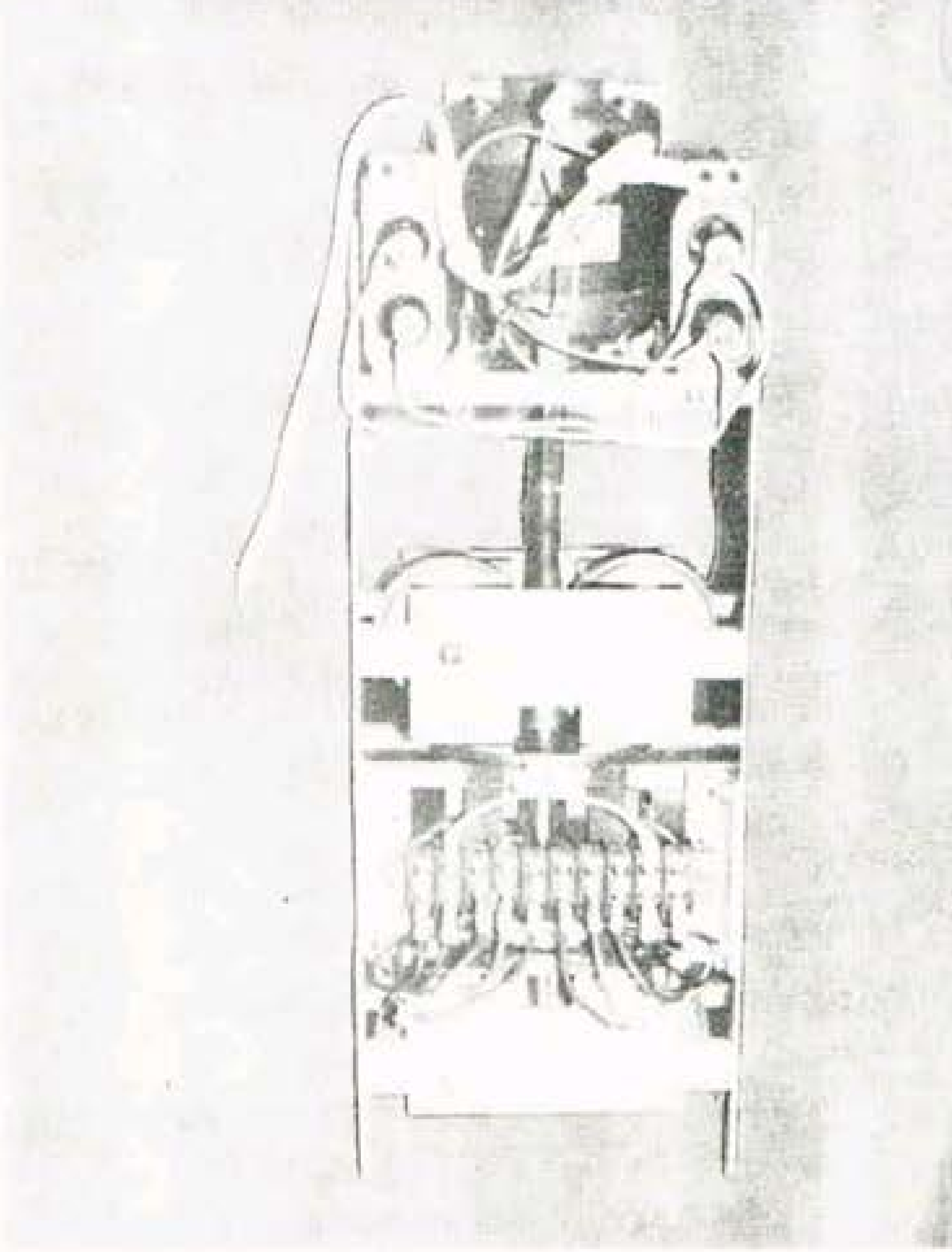
Below are two photographs of the SAG-10, a 12 VDC version of the Ecklin SAG-6, Permanent Magnet Motion Conversion Device.

The SAG-10 was made possible for public consumption thru the WASS Security Force's Protection Program for Inventors/Scientists and their Inventions. Without the protective blanket of the WASS Security Force the inventor would have never made his accomplishments public for fear of retribution from both government and big business who do not wish to see effective alternate energy devices developed and placed in the hands of the public.

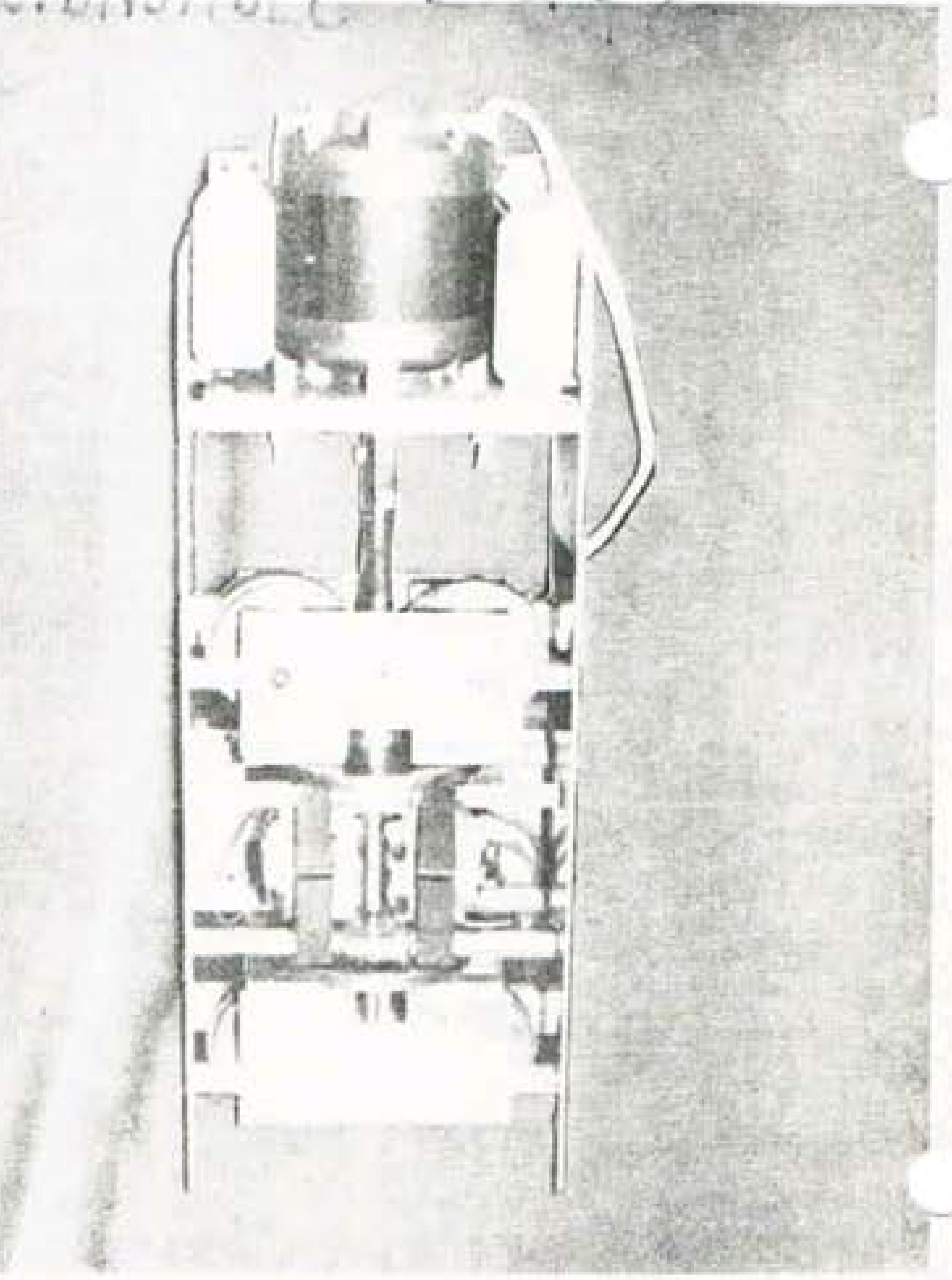
Alternate energy devices such as the Ecklin unit, the Johnson motor and others are very real and will be made available to the public.

In the photographs below you will notice an electric motor at the top, this was used to demonstrate the operability of the lower 2/3 of the device. Eventually this motor will be replaced with a Tesla steam turbine or a Johnson motor or can even be adapted to a Pelton wheel or other drive.

SAG IS STANDING ON END



TOP VIEW



BOTTOM VIEW